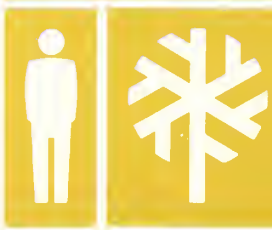
MARDIS

master plan

SEQUOIA KINGS CANYON



NATIONAL PARKS • CALIFORNIA

THIS MASTER PLAN IS BASED ON PLANS PRESENTED AT THE PUBLIC DISCUSSIONS HELD IN CONJUNCTION WITH THE WILDERNESS HEARINGS IN 1966.

recommended

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January 29, 1971

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INTRODUCTION

PURPOSE OF AREAS

Sequoia National Park, by its establishing act of September 25, 1890, "was dedicated and set apart as a public park, or pleasuring ground, for the benefit and enjoyment of the people" and "for the preservation from injury of all timber, mineral deposits, natural curiosities or wonders" and "their retention in their natural condition."

Kings Canyon National Park was established by the act of March 4, 1940, which provided that the area was "dedicated and set apart as a public park . . . for the benefit and enjoyment of the people." It also provided that the Secretary of the Interior "in order to insure the permanent preservation of the wilderness character of the park "may, in his discretion, limit the character and number of privileges" within the park.

Accordingly, it may be said that the purpose of both national parks, although they were established 50 years apart, is to perpetuate their environment in a natural state for the benefit and enjoyment of the people.

MANAGEMENT CATEGORY

Sequoia and Kings Canyon National Parks, by the provisions of their establishing acts, are natural areas.

LEGISLATIVE BACKGROUND

The boundaries of both parks have been adjusted a number of times since their establishment; but, despite these acts involving both parks, few special legislative provisions or constraints apply to them. Those of significance are summarized as follows:

Act of July 3, 1926
Denies granting of permits or licenses for dams, conduits, powerhouse, transmission lines, etc., within Sequoia National Park without specific authority of Congress.

Act of July 1, 1946
Prohibits use of National Park Service appropriations for road construction in Kings Canyon National Park, except on floor of canyon of the South Fork of the Kings River and Grant Grove section.

Joint Resolution March 29, 1956
Declares the General Grant Tree a national shrine in memory of the men and women of the Armed Forces, and directs the Secretary of the Interior to make appropriate provisions for its perpetual care and maintenance.

Act of March 4, 1940
Permits the movement without charge, under regulations prescribed by the Secretary of the Interior, of stock and vehicular traffic to and from national forest lands on either side of the boundary of the Grant Grove boundary extension.

National Trail System Act
Established the Pacific Crest Trail through Sequoia and Kings Canyon National Parks.

REGIONAL INFLUENCES

Any outdoor recreation area in California, particularly in or adjacent to southern California, can expect heavy use. California is not only the most populous State in the country, but its people number more than the combined populations of the other 11 Western States. And southern California is experiencing the highest rate of population growth in the country. It can be predicted from current population trends that the use of these recreation areas will vastly increase.

In 1968, 85 percent of Sequoia and Kings Canyon visitors came from California. This may be explained in part by the parks' lying equidistant from the major centers of population, San Francisco and Los Angeles. Also, the parks are readily accessible by road in a State which has the highest per capita automobile ownership in the world. Further, the parks may be conveniently reached by air.

The major gateway towns to the parks for automobile visitors are Fresno, population 161,000, and Visalia, population 25,000. In both cities, good accommodations and eating places are available. Fresno and Tulare Counties, west of the parks, are prosperous areas, ranking first and second, respectively, in the Nation in agricultural income. Both counties, however, derive substantial income from the tourist business and, therefore, are concerned about conditions affecting this business. Inyo County serves the parks from the east, but access to the parks from this area is by trail only. Unlike Fresno and Tulare Counties, Inyo County depends heavily on the tourist business for its income.

REGIONAL IMPACT

southern sierra

THE ENVIRONMENT

The two parks contain the most notable and extensive giant sequoia groves in the world, as well as the highest and most scenic part of the Sierra Nevada, including 14,495-foot Mount Whitney, the highest mountain in the United States outside Alaska. The mountain uplift represents an unusual geologic story and displays outstanding examples of glaciation.

The altitudinal range from the Sierra foothills to alpine tundra presents a stunning array of plants. Approximately 1200 species of plants, representing at least 85 families, have been identified; recent studies have revealed additional species.

A rich diversity of animals exists including bighorn, black bear, cougar, deer, coyote, and many smaller mammals. Wolverine, fisher, and native mountain beaver are present but rare; the same can be said of the huge pileated woodpecker. In all, the parks list 73 species of mammals, 194 of birds, 22 of reptiles, and 10 of amphibians.

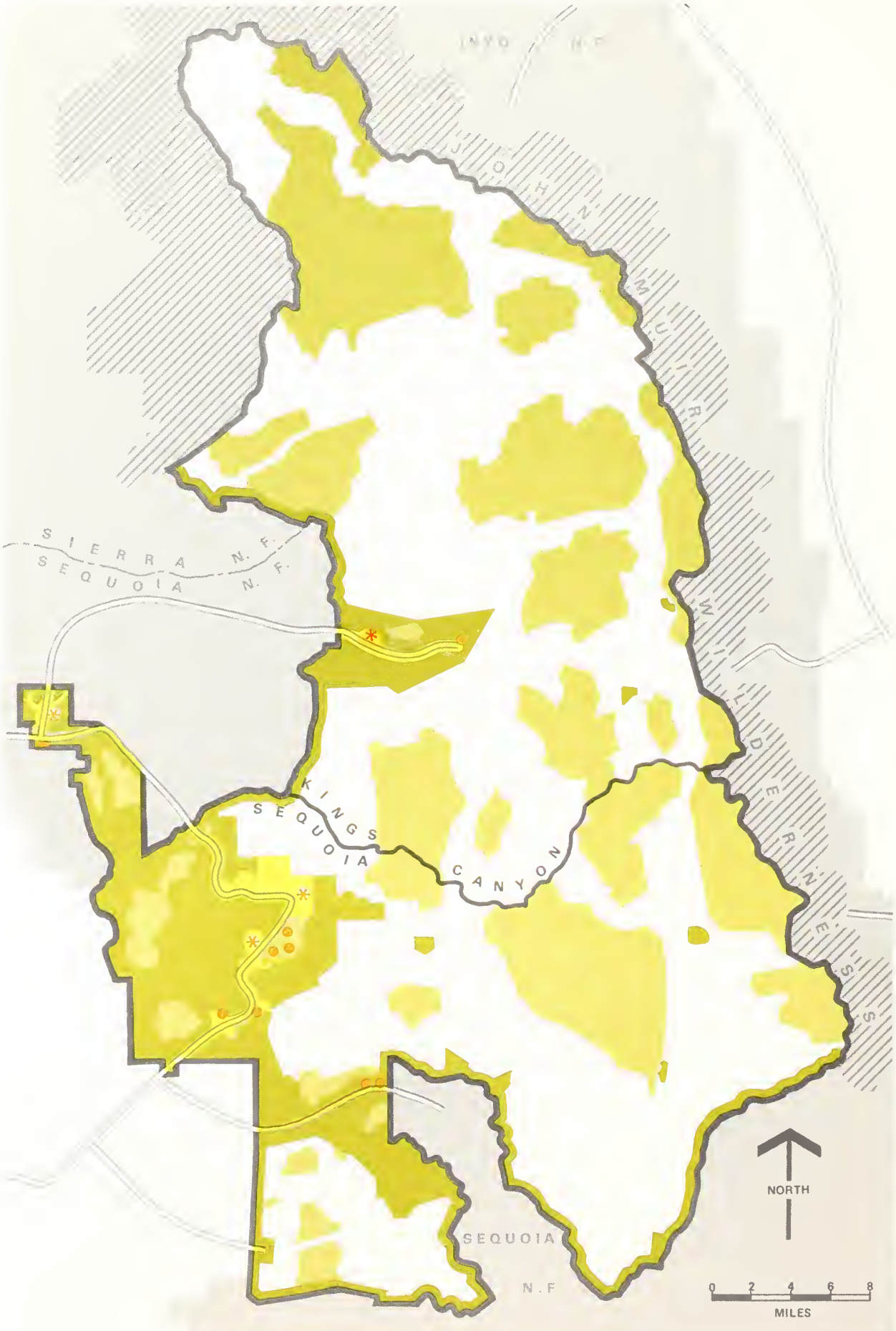
Mountain streams and dozens of lakes — including Tulainyo Lake, highest in the country at 12,865 feet — sprinkled over the alpine portions of the area contain important elements of aquatic life. The Kern River basin, the upper part of which is in Sequoia, offers a rare opportunity to restore a trout population that is unique and without equal in the Nation for diversity. Carl Schreck says, "These hybrids, *Salmo aquabonita* (Golden Trout) and *Salmo gilberti* (Kern Trout) greatly enhance the biota of Sequoia National Park, for nowhere else in the world can such a multiplicity of species and hybrids of *Salmo* be found in such proximity."

The area encompassed by these two parks, because of its topography, was largely isolated from early activities of European man in California, and their settlement of the region did not begin until the late 1850's. Indians had inhabited the area for a long time; and evidences of their occupation are plentiful, particularly at the lower elevations.

Climate is generally moderate. Average annual temperature at the Ash Mountain headquarters is 63 degrees F., with extremes of 114 to 22 degrees. At Giant Forest and Grant Grove, a high of 91 degrees and a low of minus 8 degrees have been recorded. The annual rainfall at the lower elevations is 26 inches, and it averages 44 inches in Giant Forest and Grant Grove sections. The winter snowline generally begins at an altitude of 5000 feet. Occasionally heavy snows do occur. A total of 440 inches of snow was recorded at Giant Forest during the winter of 1968-69. Heavy rainfall, which sometimes causes serious flooding, may be expected in the fall and early winter. But during the three summer months, climate at the higher elevations is ideal, with only an occasional thunderstorm to mar outdoor activities.

THE PLAN

A sound system of evaluation and classification of lands and waters in a national park is a prerequisite for master planning. The National Park Service's land classification system not only gives proper recognition and protection to park resources, but also provides for varied types and levels of visitor use within each classification. This system not only directs and controls day-to-day management of these important resources, but also provides the framework for the concepts on which the master plan is based.


INYO N.F.
SIERRA N.F.
SEQUOIA N.F.
JOHN MUIR WILDERNESS
KINGS CANYON
SEQUOIA
SEQUOIA N.F.
NORTH
0 2 4 6 8
MILES

Acres

Class I. High-Density Recreation 300

The concept includes four high-density areas in order to remove facilities from prime resources and concentrate them at Giant Forest, Lodgepole, Grant Grove, and Cedar Grove.

Class II. General Outdoor Recreation 21,000

Lands included in this classification contain park roads, unitized campgrounds, low-density lodging accommodations, low-density concessioner services, residences, and maintenance facilities. These areas are to be managed with the intent that the visitor is the primary inhabitant, while retaining the character of the natural setting.

Class III. Natural Environment 106,500

The facilities included in this zone are one-way motor nature roads, trails, and informal picnicking and camping areas. Primarily a buffer or transition zone, only low-density use having little or no impact on the general ecological values of the area is proposed.

Class IV. Outstanding Natural 272,000

These unique lands and resources are of primary interest and the principal reason for the establishment of the national parks. The highest priority is given to their protection.

Of particular significance in the management and use of Class IV lands are these controls:

No development of any kind will be placed in any sequoia grove except the minimum required for trail access by visitors on foot and minimal interpretive devices. (This does not preclude upgrading accommodations and food services within the presently developed Giant Forest area.)

In Class IV areas, other than those containing sequoia trees, no development or trail will be permitted. Visitors may travel into these areas and may stay overnight in the larger one; but no campsite preparation, tree or vegetation removal, or wood fires will be permitted. Livestock may not enter or be used for any purposes.

Research will be authorized subject to the above controls.

Class V. Primitive 447,080

These wild and undeveloped areas contain no roads or other facilities. As their management will be directed toward the preservation of the back-country experience for the visitor, no permanent shelters or developed campsites will be permitted. No mechanized vehicles, except those authorized for emergency service, will be allowed.

Research will be authorized subject to the above controls.

Class VI. Historical Areas 120

Remains of Indian habitation, early white settlements, and historic utilization are prevalent. These will be preserved and used in the park interpretive story.

Total Acres 847,000

land classification

EXPAND RESOURCE-MANAGEMENT PROGRAMS

In preserving the natural resources, past efforts were mainly concerned with protecting the sequoia and mixed conifer forests from physical damage by fire, insects, or disease. With increased knowledge of ecological processes, it has become apparent that this type of management has certain shortcomings. In fact, well-intentioned measures directed largely toward the protection of a single species has seriously interfered with natural processes, thus altering and, in some cases, endangering the very resources which the parks were established to preserve. Fire has been an important element in the environment of this locality since time immemorial. Fire, therefore, should be restored to its natural role in the environment. However, an efficient organization must be maintained to prevent and contain fires that may endanger human life and property.

Beginning in 1965, controlled fires were used over small areas in sequoia groves in connection with research to determine the effects of fire on the ground cover and reproduction of the sequoias. In 1968, varied levels of prescribed fire were used on 800 acres of mixed coniferous forest in the upper reaches of the Middle Fork of the Kings River to determine fire's effect on vegetative cover, stream runoff, and wildlife. During the same period, a policy of letting natural fires – those started by lightning – burn in certain areas of Kings Canyon above 9000 feet was initiated. The use of prescribed fire and natural fire proved so successful in this test period that both methods have received expanded use over larger portions of the parks since 1968. Fire, prescribed and natural, can play an increasingly useful role in restoring the natural regime to the parks' environment. Its use should be expanded, but research and management funds must be made available if fire is to be properly used without undue danger to the area and its surroundings. The effect of smoke from fires needs to be better understood. Smoke from this source – though it like fire has long been a natural element in the environment – can be intolerable in the air where pollution from other sources is already a problem.

Judicious control of insect and plant diseases, particularly in developed areas where protection of the vegetative cover is of primary importance, remains an important element of resource management. White pine blister rust, which has recently been identified in the southern portion of Sequoia and lands adjacent thereto, poses a serious threat to the sugar pine forest. Complete vigilance and careful control of this plant disease is required if the magnificent sugar pine forests of these parks are to be maintained in their natural state.

Management of visitor use in developed areas, the sequoia groves, and the backcountry of the High Sierra constitutes a most important element of resource management in these parks. Management plans to reduce visitor impact in the backcountry have been in effect for 10 years. As a result, restoration of the mountain meadows and lakeshores is already evident; but increasing visitor use requires research, expanded management measures, and controls if the fragile park environment is to be maintained in its natural condition.

The State of California, the U.S. Forest Service, the Bureau of Land Management, county government, and private agencies all control and manage lands and resources in the region adjacent to these parks. Constant cooperation in a close working relationship with these agencies is also essential to a successful resource management program in these parks.

Elements of the physical plants of these two parks are obsolescent, overloaded, or outworn, so that deficiencies arising therefrom are having a detrimental effect on the parks' natural resources. Outmoded sewer and water systems, worn-out trails, obsolescent buildings – all need to be replaced or rehabilitated to eliminate these deficiencies.

Because the backcountry consists of the most scenic portions of the Sierra, it

is a backpacker's paradise; hence, the parks' fragile alpine backcountry has been its most magnetic attraction and, consequently, its most persistent problem. Basically the problem is visitor use, principally by stock parties in the past but presently by the backpacker. Compounding this is the fact that most of the back-country trails, constructed years ago, are in many cases poorly located and badly worn, and in other cases inadequate for today's needs. Major rehabilitation and much reconstruction are urgently needed and should be granted the highest priority. Contributing also is the fact that 60 percent of the back-country users enter from trailheads or trail entrances without any contact with representatives of the National Park Service. Specifically all trail entrances on the east side as well as the Sierra Crest Trail begin outside the parks' boundaries. Present use level suggests that more of the Service's presence is required in this vulnerable area. These unique resources, the essence of these two essentially high-country parks, must receive the highest order of protection. To assure this primary mandate, a combination of controls, some already implemented, should be expanded.

Land-classification zoning not only gives proper recognition and protection to the parks' resources, but it also provides for varied and different levels of use within each classification zone and provides the framework for the day-to-day management of these important resource lands.

Basic to the success of management of the backcountry will be the Service's ability to channel visitors to strategically located visitor-service enclaves which can be closely monitored, controlled, and effectively maintained. In this respect, the need for improved information and increased staffing cannot be minimized.

RESEARCH NEEDS

Adequate knowledge obtained through appropriate investigation and research has long been recognized as essential to proper park management. However, in the past, lack of funds has seriously limited research activities by the Service. Although considerable research has been accomplished under these conditions, a great deal more is required. The need is particularly great for mission-oriented research that will guide management in restoring and preserving park resources by developing effective means of maintaining natural ecological processes.

The increasing general concern about environmental problems has reached the point where several California colleges are considering the development of programs in environmental conservation. The circumstance suggests the possiblity of developing a cooperative research program which would be mutually beneficial. Such a program would benefit the Service by facilitating research and producing the factual data needed for improved management of

the Sierran national parks. It would benefit the college in furthering professional academic interest and serving as a vehicle for students to obtain advanced degrees.

The research center should be one of a cooperative nature with administrative control shared by the National Park Service. For maximum benefit, it should be closely tied to the academic structure so that its program would relate directly with the training of professional park and recreation people.

Generally the center would:

Serve as a clearinghouse for coordinating research interests and efforts of all participants in the program so as to avoid duplication of effort.

Provide liaison with other educational institutions and individuals, coordinating research capabilities and interests with area and Service research needs.

Bring about the integration of research programs where appropriate to better assure the maximum benefits to meet Park Service needs.

Ideally, the foregoing research effort should be located in a center in or adjacent to an institutuion of higher education convenient to the Sierra and these parks, so that field work could be done in the parks, but office work and support effort could be carried on in the center. Such a facility could also serve Yosemite National Park where vegetative patterns, biota, and the alpine environment are similar to those in Sequoia and Kings Canyon National Parks.

UPGRADE DEVELOPMENTS

Fully aware that its ultimate value to the region is its day-use capacity, the Service is, nevertheless, convinced of the validity of providing a basic increment of overnight accommodations within the parks. Accordingly, ceilings consistent with the parks' restricted water supplies and site availability have been established. Specifically, lodge accommodations will be restricted to 2000 pillows and camping to 1700 sites. Although such ceilings permit only minor overnight-accommodations expansion within the Cedar Grove and Grant Grove areas, contemplated phased relocation of most development in the Giant Forest area necessitates a restructuring of the physical plant there. Basic to this restructuring is the replacement of the lodge facility, including 1200 pillows as part of a multi-unit design, scheduled for the Kaweah area. Campgrounds now located in the Giant Forest area will be replaced by facilities at Clover Creek.

Much of the employee housing, particularly in outlying areas, constructed during the 1920's, is obsolete, overaged, and in many cases substandard. Such housing should be replaced with modern facilities.

Increasing visitation in the backcountry will require campgrounds or simple shelters at strategic points to adequately care for concentrated use and relieve the impact on the surrounding wilderness. These facilities will require small water and waste-disposal systems. Because of the need for these facilities, five small enclaves are proposed in the backcountry as reservations in the wilderness which will permit installation of these facilities.

Wilsonia Village – with about 280 cottages and summer homes, as well as several stores and lodges, located on 112 acres – is in the Grant Grove section of Kings Canyon National Park. Lack of a water supply, substandard waste-disposal systems, uncoordinated development, inadequate roads, and overbuilding on small lots are bringing real problems to the inhabitants of the subdivision and are producing undesirable effects on the national park environment in which the development is located.

In view of the impact this enclave of developed land has on the park, the National Park Service contracted with a consultant to make a survey and analysis of Wilsonia to determine the feasibility of zoning methods to properly utilize the village area for private residences and commercial uses, and to maintain the area in a manner compatible with its park surroundings. Ecological and environmental effects of the proposed zoning and land-use regulations were also considered in the study.

The study indicates two options are open if the area occupied by Wilsonia is to be truly compatible with its national park surroundings. One option proposes a village that could be accommodated in the national park. Achievement of this objective would necessitate redevelopment of the village through revision of lot sizes and the structures thereon, conversion of portions of this area to public open space, reconstruction and location of streets and roads, and installation of community water and waste-disposal systems provided an adequate source of water can be found at reasonable cost – which appears doubtful. The second option takes the view that – because of the limited land available in the Grant Grove area, the lack of potable water, and the requirements of future visitor use in Grant Grove – further development or redevelopment of Wilsonia Village is incompatible with the maintenance of a national park environment and the objectives for which the park was created.

Either option will require expenditure of considerable Federal funds. One requires some reallocation of lots, creation of public open space, and installation of water and sewer systems, as well as an improved road system. The second option looks toward the eventual acquisition of the private lands in Wilsonia, the elimination of the improvements thereon, and the return of the area to a natural state.

Analysis of the two options indicates initial costs to implement either would be about the same; but the cost of administration and maintenance of roads, streets, and public facilities for operation of the village makes the zoning and

continued support of the village development the more costly from a long-term view. Early resolution of this problem is essential and must be discussed at a level above the field office.

EXPAND CIRCULATION

Although considered an engineering feat for its day and deemed adequate from a traffic-capacity standpoint to handle travel projections through 1975, the General's Highway, particularly the steep and narrow section between Ash Mountain and Lodgepole, frustrates today's freeway-oriented visitor. Furthermore, its route through restricted developed areas produces congestion and delays, particularly on summer weekends. In any case, a token four-year adequacy leaves no room for complacency. Obviously, if increasing visitation is to be accommodated, some form of transportation system eventually must be introduced. Limited technology in this area to date makes it extremely difficult to predict the type of vehicle or system which ultimately must replace the automobile as the primary mode of transportation within the lower reaches of the parks. Cost of installation, the particular needs of the family, and the availability of new equipment are all factors which will ultimately influence the final decision.

Realities being what they are, any improvements which will extend the useful life of the present road system should be granted the highest priority. To this end, the master plan proposes a bypass around the Giant Forest sequoia groves. Essentially, such a reroute will eliminate the two most troublesome bottlenecks within the park, Kaweah and Giant Forest. With the elimination of through traffic, expanded interpretation within the grove, utilizing any of a number of rubber-tired minitrains, can be implemented.

EXPAND INTERPRETATION

Sequoia and Kings Canyon National Parks are to be interpreted as a whole, not treated as two distinct and unrelated places. The principal subjects of interpretation will be the sequoia and the Sierra Nevada. In addition to these, there are a number of other special features of interest. Most of them are historical, but some are natural features like Crystal Cave, Round Meadow, and other subjects of local importance.

The purpose of interpreting these subjects is, of course, to increase enjoyment and appreciation of the features. If the program is successful, people should see the sequoia as a remarkable tree dependent on special environmental factors. Its survival, like ours, requires suitable living conditions. The Sierra, on the other hand, is a great creator of environments. It is one of the most massive ranges in the country, and its impact on the Western United States has been profound. Its mines created the Gold Rush of 1849. Today Californians depend on these mountains for water and recreation. They have had to adjust to the impact of the mountains on climate and transportation. These are the basic ingredients for an

environmental treatment of the principal resources of the parks. The other, local subjects should be related to these basic concepts for showing the dependence of man on his environment.

Relatively few people systematically go from one to another of the developed areas in the parks, covering all of them on a single trip. At the same time, many people do stop in at more than one such place. For that reason, sharply dividing interpretive subjects among the several developed areas would be a mistake. It would also be mistaken to treat both the sequoia and the Sierra Nevada at every point with equal emphasis. Instead, these major subjects will be treated in various forms at many locations, with emphasis scaled to the other subjects of interest near each location. There is, however, a special need to stress the Sierra Nevada.

Unfortunately most visitors, 95 percent of them, see relatively little of the High Sierra. The existing road system features "Big Trees." In this respect, potential sites which lend themselves to development of secondary systems to select vista points, where the visitor can behold the high country — now the exclusive domain of the more hardy backpacker — should be explored. Replacing the obsolete exhibits at Lodgepole is another chance to build up Sierra interpretation to its rightful share of the program. Until such opportunities are exploited, it will take considerable salesmanship to present the Sierra story as anything more than a textbook exercise.

COORDINATED PLANNING — A NEED

Encompassing the most scenic High Sierra country* and the magnificent virgin stands of *Sequoia gigantea,* Sequoia and Kings Canyon National Parks make prime recreation targets for the affluent, highly mobile, suburban Californian concentrated in the southern, teeming half of the State.

Offered little else of this high scenic and recreation caliber, it is not surprising that the southern Californian, primarily from the Los Angeles metropolitan area less than four hours' drive away, comprises 85 percent of the parks' visitation.

Predominantly day users, many simply drive through, choosing to see the parks through windshields, stopping only at spectacular vistas, at sequoia groves, or for food.

Certainly the area's limited overnight accommodations contribute to this established pattern. Nevertheless, because of existing boundaries, rugged terrain, and the Service's preservation mandate, there is little opportunity for expanding physical developments within the parks. Slope analyses reveal that developable sites with suitable terrain and climatic conditions within the parks are already utilized. Limited water-supply and sewage-disposal problems further complicate the problem.

*Alpine region above the main forest roughly 8,000 feet and over

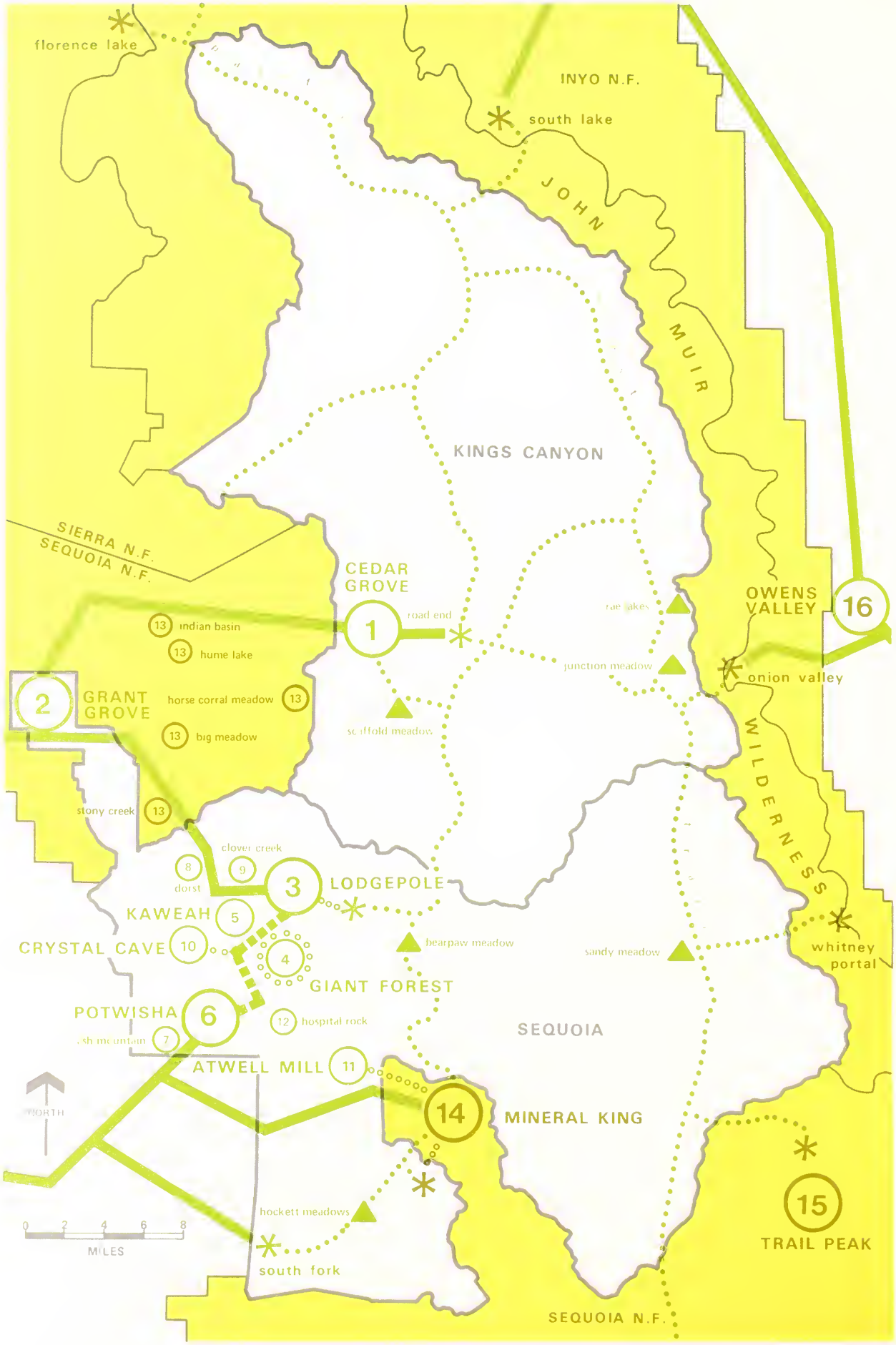
As for development occurring outside the park boundaries, similar problems exist; and, therefore, the few sites that are available are coveted by many interests. Lack of any meaningful zoning in the foothill country has encouraged rampant land speculation and adverse development on private lands.

Timber requirements for locally based industries necessarily compete for the limited federally owned land (national forests) adjacent to the park. Nevertheless, within these limits, the Forest Service is planning to expand recreation facilities within the strategic Indian Basin, Stony Creek, and Big Meadows areas.

A large recreation complex on the strategic east slope of the range, within the Trail Peak area, is in the early stage of development. Mineral King Valley — its fate presently being decided by the courts — is yet another response by the Forest Service to meet the ever-increasing recreation pressures within the southern Sierra region.

These unilateral efforts, however, cannot hope to meet present recreation needs, let alone anticipated ones. Recent State surveys estimate that just to meet projected needs in camping by 1980, 34,900 additional units will be required State-wide, with the majority needed in the southern half of the State. Ultimately, the State and Federal agencies must develop a joint comprehensive plan for the Sierra Nevada. Such a concept challenges the traditional mandates of a region jurisdictionally divided along county, State, Federal, and commission planning levels. Cooperation and compromise essential to such joint effort will not come easily. On the other hand, never was the need so obvious and the climate so receptive.

In the interim, since it can do very little unilaterally toward increasing the accommodations base within the region, the Service must seek to increase and improve the quality of its day-use visit and achieve better control of its unique and popular back-country use. Any addition to the accommodations base, however, will intensify the present visitor-use pressures. The validity of this is inherent in the fact that these uses have already created resource deterioration and crowding.


florence lake
INYO N.F.
south lake
JOHN MUIR
KINGS CANYON
SIERRA N.F.
SEQUOIA N.F.
CEDAR GROVE
1
road end
13 indian basin
13 hume lake
2
GRANT GROVE
horse corral meadow 13
13 big meadow
scaffold meadow
tar lakes
junction meadow
OWENS VALLEY
16
onion valley
WILDERNESS
stony creek 13
clover creek
8
dorst
9
3
LODGEPOLE
KAWEAH 5
CRYSTAL CAVE 10
4
GIANT FOREST
bearpaw meadow
sandy meadow
whitney portal
POTWISHA
6
12 hospital rock
ash mountain 7
SEQUOIA
ATWELL MILL 11
14
MINERAL KING
15
TRAIL PEAK
NORTH
0 2 4 6 8
MILES
hockett meadows
south fork
SEQUOIA N.F.

DEVELOPMENT FUNCTIONS – NATIONAL PARKS

1 CEDAR GROVE (family recreation)
- Camping (no expansion)
- Hike-in campsites
- Visitor services and accommodations
- Operations
- Scenic driving (one-way motor nature trails)
- Interpretation (geology and back-country use)

2 GRANT GROVE (sequoia grove interpretation)
- Camping (no expansion)
- Visitor services and accommodations
- Operations
- Interpretation
- Winter play

3 LODGEPOLE-WOLVERTON (day-use focus)
- Transportation center and parking
- Interpretation (High Sierra)
- Visitor services
- Hike-in campsites
- Operations
- Winter recreation

4 GIANT FOREST (interpretation)

5 KAWEAH (accommodations)
- Visitor services and accommodations

6 POTWISHA (transportation terminal)
- Transportation center and parking
- Information
- Camping (eventual phase out)

7 ASH MOUNTAIN (operations headquarters)

8 DORST – camping (definite capacity)

9 CLOVER CREEK – camping (not developed)

10 CRYSTAL CAVE (cave interpretation)

11 ATWELL MILL (sequoia interpretation and history)
- Camping (eventual phase out)

12 HOSPITAL ROCK (archeological interpretation)

DEVELOPMENT FUNCTIONS – NATIONAL FORESTS

13 INDIAN BASIN – HUME LAKE – BIG MEADOW – HORSE CORRAL MEADOW – STONY CREEK (recreation – accommodations)
- Camping (all types)
- Forest production
- Grazing
- Visitor services and accommodations
- Operations

14 MINERAL KING AND TRAIL PEAK (major
15 recreation centers)
- Recreation activities
- Visitor services and accommodations
- Interpretation (High Sierra) (cooperate with NPS)
- Winter recreation
- Operations

16 OWENS VALLEY
- Joint Forest Service-Bureau of Land Management and National Park Service information center.
- Trailhead campgrounds

DEVELOPED AREAS

BACK-COUNTRY DEVELOPED CAMPSITES

MAIN BACK-COUNTRY TRAILHEADS

MAJOR TRAILS

PRIMARY ROADS

PRIMARY TRANSPORTATION SYSTEMS

SECONDARY TRANSPORTATION SYSTEMS

general development

APPENDIXES

MANAGEMENT OBJECTIVES

General Management

- Coordinate research and management efforts to identify and apply actions necessary to restore and/or perpetuate desirable environmental conditions as contemplated in the policies for management of natural areas.

- Adjust seasonal levels of operations to provide optimum protection of natural resources and service to park visitors.

  At Ash Mountain, Giant Forest, and Grant Grove, personnel and facilities should be provided to operate on a 7-day-week, 24-hour basis from May 20 to September 15. The Ash Mountain and Big Stump entrances are considered to be parts of the above installations.

  The General's Highway and access roads in the above developed areas should be maintained for year-round traffic.

  Operations during the September 15 to May 20 period must be keyed to the requirements of visitor use, which can vary greatly with weather and snow conditions. From December 20 through March 15, services should be maintained on a 24-hour basis during holidays and weekends at the foregoing developed areas and entrances.

  For the foreseeable future, Cedar Grove should be operated on a seasonal basis, May 1 through October 31; but all buildings and improvements placed there should be constructed for year-round operation because

visitor demand may well require year-round operation of Cedar Grove within five to ten years.

Existing travel patterns – involving heavy visitation on weekends, holidays, and school vacations – are resulting in overcrowding of facilities and are detrimental to park resources. Concentrated effort should be made to encourage visitation during midweek and the periods of October to November and March through May, in an effort to level off the existing peaks in this travel pattern.

- The existing primary road system throughout the two parks generally provides access consistent with required resource protection. Relocations may be necessary to relieve congestion in developed areas or to provide for improved resource protection or visitor use and enjoyment.

- Concession visitor overnight accommodations should not be expanded beyond a capacity of 2000 pillows, and accommodations at Giant Forest should not exceed the existing pillow capacity of 1240.

- Overnight public use and support facilities provided by the concessioner will be confined to the Giant Forest-Lodgepole, Grant Grove, and Cedar Grove areas, except where simple camps or huts may be required in the backcountry.

- The primary interpretive themes are the sequoia groves and the High Sierra. The objective is to encourage visitors to absorb the inspiring atmosphere of the sequoia groves and to relate the survival of the sequoias – through the preservation of the trees' required living conditions – with our own survival and welfare – through the protection of the quality of our environment. A parallel purpose is to impart an awareness of the unique recreational quality of alpine wilderness and a realization of the fragility and vulnerability of that quality.

  The essential visitor-experience opportunities are:

  Walking in a quiet and unspoiled grove of sequoias to experience the magnificence of the trees in an atmosphere of tranquility.

  Seeing and feeling the rugged wilderness of the High Sierra, being in it under primitive and undisturbed conditions, and traveling into it beyond the influence and distractions of urban life.

- Most of the backcountry in both parks is outstanding wilderness and should be so managed. Visitor use is heavy on some trails leading into the backcountry, to Mount Whitney, and the John Muir Trail. The last will ultimately be included in the Pacific Crest Trail. Visitor use can be expected to increase. Facilities such as campgrounds or primitive trailside accommodations of the High-Sierra-Camp type may be required in areas of trail-visitor concentration to make available the wilderness experience to park visitors, to protect the resource from overuse, and to provide proper sanitation. Enclaves or corridors along heavily used trails may have

to be excluded from wilderness classification where the need for facilities is imperative. The alternative to designated developed facilities would be an enforceable system of rationed visitor use in the backcountry if the quality of the natural environment is to be maintained.

- Two large developments on Forest Service lands immediately adjacent to Sequoia National Park — the Mineral King and Trail Peak developments — will, in effect, provide two additional and relatively easy access routes for visitors into the parks' backcountry on a year-round basis. To avoid detrimental impact on the parks, these two proposed developments will require close study by this Service and a high degree of joint planning in cooperation with the Forest Service and developers.

Resource Management

- No further development of any kind should be placed in any sequoia grove except the minimum required for trail access by visitors on foot and minimal interpretive devices. This does not preclude upgrading accommodations and food services within the presently developed Giant Forest area.

- Natural science research is and will continue to be an important activity in these parks and will be encouraged. It is fundamental to good resource management. However, problems exist now and will increase as time goes on because of the lack of housing and basic facilities for research activities. To protect the resource, every effort should be made to arrange for as many as possible of the research facilities to be located outside of the park but in reasonably close proximity to them. Mobile facilities offer one solution where research requires residence onsite.

- No development should be undertaken in the parks which will provide human habitation, until it is shown that adequate water-supply and waste-disposal systems are available and that such development will not cause undue deterioration of the natural environment.

- Private land inholdings, particularly subdivisions, are becoming increasingly detrimental to the park environment. Priority should be given to acquisition of these inholdings. Pending acquisition, suitable regulations should be formulated to minimize adverse uses.

- Fire and other natural agents must be skillfully restored to the park ecosystems. Restoration of natural environmental processes is particularly essential in the sequoia groves, high mountain meadows, and some lakes and streams.

- Measures must be taken in the immediate future to provide more adequate protection of the environment in the vicinity of the General Sherman and General Grant Trees. Improved management of visitor use in these highly popular areas is imperative to better protect these great trees.

Visitor Use

- In congested areas or areas where automobile traffic is undesirable, other systems of transportation should be utilized to provide appropriate use, consistent with quality experience and resource protection.

- Additional opportunities should be developed to enable park visitors to view the High Sierra. More ready access to overlooks such as Big Baldy and Panorama Point offer opportunities to develop new viewing possibilities. Trams and lifts should be considered for developing overlooks of the Sierra Crest, since they may be more practical and less damaging to the environment than roads.

- Visitor contact facilities for information and orientation, located at trailhead entrances into the parks, should be developed, especially on the east side.

- Encourage development of trailer courts, campgrounds, and overnight accommodations outside of the parks but in close proximity to them.

- Motor nature trails which provide a quality park experience for visitors will be developed from existing administrative roads where feasible and practical.

- Winter sports and snow activities at Giant Forest, Lodgepole, Wolverton, and Grant Grove should be maintained at a simple family-participation level. This will not preclude the upgrading of existing facilities at Wolverton.

- Campground capacity in the parks should be maintained at existing levels. Campgrounds in Giant Forest should be removed from the sequoia groves to the Clover Creek-Willow Meadow area. All campgrounds require improvement and rehabilitation to properly regulate camping activity and protect the environment.

- The entire trail system should be evaluated in terms of existing and projected needs and the altered pattern of use, arising from increasing numbers of foot travelers compared to horse and packtrain use.

- Because of the damage resulting from livestock foraging for food and resultant trampling of soils, possible pollution of water, and conflict with foot travelers, use of livestock in the higher elevations for any purpose should be phased out as conditions permit. Search and rescue, fire suppression, resource-management activities, and maintenance and supply functions should be serviced by helicopter instead of livestock. Livestock may be used in the lower elevations and around developed areas where it can be stabled and fed without open grazing on park lands.

- Touring by ski and snowshoe is increasingly popular with visitors. Proposed year-round developments adjacent to the parks at higher elevations will, undoubtedly, greatly stimulate winter touring of the snow

country available in the parks. Any back-country shelters or camps installed in the parks should consider the potential of this type of winter use.

VISITOR USE – ANALYSIS

These two parks have been popular attractions for visitors, most of whom are Californians, since their establishment. Total visitation to the two parks was slightly less than two million in 1968. Touring by car is the most popular visitor activity, but camping is important, too. Of the total 657,000 overnight visits through October 1968, two thirds used the campgrounds; and the remainder used concessioner or privately owned overnight accommodations. In 1968, 15,700 persons used the back-country trails, totaling 95,400 visitor days. Considering the fragile alpine environment involved, use of the backcountry is heavy. Although the parks are open year-round, travel follows the traditional pattern, with 80 percent coming during the months public schools are closed. Of major significance is the parks' location in relatively close proximity to the West Coast's major population centers.

Fishing and riding are prominent visitor activities, as is swimming in mountain streams adjacent to the campgrounds. Playing in the snow and skiing are the important winter activities, with the Wolverton area near Giant Forest available for family-type skiing. Emphasis there is placed on this type of use because the area contains short, gradual slopes, ideal for beginners and novice skiers.

The parks are surrounded, for all practical purposes, by three national forests, but sizeable areas of public domain are in the vicinity. During the summer months, all facilities in the parks and adjacent area are used to capacity; and, in the more popular developed areas, there is overcrowding.

Visitation to these parks is increasing, with camping demand becoming insatiable. Camper use, however, is definitely shifting from tent to vehicle. All other visitor activities are increasing in about the same proportion as the annual increase in visitors. Saddle-horse use is showing evidence of tapering off, and visitors now seem to prefer short or half-day trips to longer trips. Increasing cost of horse rental is a factor in this. Visitor use of the backcountry is shifting from saddle horse to hiker-backpacker users.

Carrying capacity must vary with the season and climatic conditions. Based on current conditions and foreseeable developments, the capacity of these parks is approximately 2,250,000 annually, with a monthly maximum load of 500,000 and a maximum daily figure of 17,000. Winter capacities would be about 10 percent of the monthly and daily figures set forth above. With careful planning, development, and management, the environment would sustain this number of visitors without any major destruction to the environment.

EXISTING ROAD SYSTEM
EXISTING
PRIMARY ROAD
SECONDARY ROAD
UNPAVED ROAD
0 2 4 6 8
MILES
NORTH
CEDAR GROVE
GRANT GROVE
KINGS CANYON
LODGEPOLE
GIANT FOREST
SEQUOIA
ASH MOUNTAIN
198
MINERAL KING

REFERENCES

CALIFORNIA, DEPARTMENT OF PARKS AND RECREATION

California Outdoor Recreation Plan, Sacramento, 1971. Not yet issued.

NATIONAL PARK SERVICE

"A Back Country Management Evaluation, Sequoia and Kings Canyon National Parks," by E. Lowell Sumner, National Park Service Western Regional Office, San Francisco, 1968. Dittoed.

"Giant Sequoia Ecology"; by R. J. Hartesveldt, H. T. Harvey, and H. S. Shellhammer; National Park Service Western Regional Office, San Francisco; 1967. Dittoed.

"An Investigation of the Effect of Direct Human Impact and of Advanced Plant Succession on *Sequoia gigantea* in Sequoia and Kings Canyon National Parks, California," by Richard J. Hartesveldt, National Park Service Western Regional Office, San Francisco, 1965. Dittoed.

A Land Use Plan for Wilsonia, Kings Canyon National Park, by Theodore Osmundson and Associates, National Park Service Western Regional Office, San Francisco, 1970.

"Special Report on Range Management and Wildlife Protection in Kings Canyon National Park," by E. Lowell Sumner, National Park Service Western Regional Office, San Francisco, 1941. Dittoed.

Traffic Analysis Master Plan Studies, Sequoia and Kings Canyon National Parks, by D. Jackson Faustman, National Park Service Western Regional Office, San Francisco, 1969.

SHRECK, CARL B.

"Trouts of the Upper Kern River Basin, California," Colorado State University, 1969. Thesis.

WALT DISNEY PRODUCTIONS

Master Plan for the Development of Mineral King in Sequoia National Forest, Burbank, 1969.

A Proposal for the Development of Mineral King, Burbank, 1965.

WESTERN INYO RECREATION CORPORATION

A Summary of a Proposal for Development of a Public Recreation Area – Trail Peak, Inyo National Forest, Anaheim, California, 1969.

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